Why experimental studies?

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In an ideal world, there is continuous communication and collaboration among all the subfields of linguistics. As such, theories of core topics of linguistics, such as syntax and semantics are tested and validated by the experimental studies like those developed by psycholinguists and neurolinguistics. This way, not only will the proposed core theories be evaluated through neurological and psychological experiments, but also the nuances detected in the experimental studies will help prepare the grounds for developing theories in core topics of syntax, semantics and morphology. Furthermore, the results in both core and experimental linguistic studies are useful to account for the way in which the acquisition of a second language works, on the basis of which material for language learners are developed. Therefore, the whole field is an uninterrupted loop, where each discipline can benefit the whole and get benefit from it.

In this paper, I discuss the few existing examples of experimental studies in Persian. I will try to relate it with the core subjects of linguistics, mainly syntax and semantics. For example, how complex predicates are processed in native speakers of Persian and how the results can be useful in the debates among the syntacticians and semanticists over which theory works for Persian. Some of the studies that I intend to discuss are as follows.

They start from studies on segments to words to compounds and phrases and finally to sentences. At the segmental level, Timmer et al. (2012) investigated whether native Persian speakers read aloud transparent words (i.e., words containing long vowels, which are written), but not opaque words (i.e. words containing short vowels, which are not written), faster when preceded by phonologically similar, onset-matching primes (e.g. respectively, *sāl* 'year'- *SOT* 'voice'; *SOLH* 'peace') compared to phonologically dissimilar, onset-mismatching primes (e.g. respectively, *tāb* 'swing' - *SOT* 'voice'; *SOLH* 'peace'). They observed that the subjects read the phonologically matching prime-target pairs faster than their mismatching counterparts in the transparent Persian words; whereas in the opaque Persian words they found no priming effect, in line with reading aloud studies in other Indo-European languages.

At the word level, Raghibdoost and Mehrabi (2010) investigated Persian verb processing during sentence comprehension. They examined whether or not syntactic and semantic complexities of transitive and intransitive Persian verbs affect real-time sentence processing. At the compound word level, Shabani-Jadidi (2014) investigated the priming effect in three kinds of relatedness in Persian complex predicates: (1) relatively transparent (e.g., *ghazā-xordan* 'food-to eat'—*GHAZĀ* 'food' to eat), (2) relatively opaque (e.g., *qasam-xordan* 'oath-to eat'—*QASAM* 'oath' to swear), and (3) orthographically overlapping (e.g., *shenāxtan* 'to recognize'—*SHENĀ* 'swimming'). The author investigated the priming effect of these compounds and pseudo-compounds (i.e., the orthographically overlapping prime-target pairs) on their nominal constituent or pseudo-constituent word as well as the priming effect of these compounds and pseudo-compounds (i.e., the orthographically overlapping prime-target pairs) on their verbal constituent or pseudo-constituent word. The results favoured the possibility of competing verb alternatives in online processing, that can be matched with the noun in the transparent condition unlike the opaque and orthographically overlapping conditions. A similar study has been done on Persian compound nouns, in this case using a masked

priming paradigm and investigating three kinds of relatedness: (1) transparent (e.g., *sar-angosht-SAR* 'fingertip / HEAD'); (2) opaque (e.g., *sanjāb-SANJ* 'squirrel / MEASURE'); and (3) orthographic (e.g., *badraghe-BADR* 'seeing off / MOON'). The results revealed a priming effect not only in the transparent condition but also in the opaque and orthographic conditions (Nojoumian et al., 2006).

At the sentential level, Nilipour (2000) studied the grammar of two right-handed monolingual native speakers of Persian, who had became aphasic due to traumatic left brain damage. The tasks tested both writing and speech modalities. Both patients used simple syntax with little variation. Most of the utterances lacked the lexical verb or erroneously replaced the verbs with the "filler" verb *ast* 'is.' In addition, there was a tendency to use the present tense rather than the past, despite it being longer in form.

At the idiom level, Sadat Safavi (2013) compared structural and semantic processing of Persian idioms and concluded that processing of idioms is more demanding for the brain than the processing of non-idioms and that both hemispheres of the brain are equally involved in idiom processing. Similar results were observed when Marefat and Arabmofrad (2008) studied garden-path sentences and their processing in Persian. They concluded that garden-path sentences increase the processing load.

How do these experimental studies contribute to the debates in Persian morphology, syntax, and semantics? How can they benefit second language acquisition theories and their pedagogical implications? These are the kind of questions that I will address in this paper. Since experimental studies use a different set of tools than the ones used in the studies in syntax and semantics, the paper will contribute to our overall understanding of how the language works. In the vast field of Persian linguistics, there are invaluable studies done in isolation and independent of their link to the whole picture. My purpose in this paper is to connect the seemingly disconnected dots and present a bird's-eye-view of some of the issues at stake.

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